

THE DIGITAL REVOLUTION: TRANSFORMING FINANCIAL MARKET INFRASTRUCTURE

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FOREWORD

Carolyn Weinberg, Chief Product and Innovation Officer

Global financial markets are currently at an inflection point. Capital markets are moving faster towards an always-on operating model, and at the same time, distributed ledger technologies (DLT), including blockchain technology, are becoming more mainstream. These megatrends are reshaping global financial markets by increasing liquidity, transparency and mobility.

Core to this transformation are the United States Treasury (UST) and cash markets which facilitate the flow of capital, serve as essential collateral and power the payments ecosystem. Traditional infrastructure and legacy operating systems — including batch processing, time zone differences and after-hours market closures — pose settlement efficiency challenges today. No recent advancement has made this clearer than blockchain technology. This transformation isn't about blockchain technology immediately replacing traditional systems, it's about the two working in concert to unlock new possibilities. Over time, this coexistence will evolve through phases, ultimately shaping a future that will be fundamentally transformed.

Imagine a future where assets move seamlessly across borders, powered by interoperability that allows programmable money and new currencies to facilitate global payments and serve as faster-settling collateral. In this model, over time markets could operate 24/7, with certainty, and enable use cases such as global continuous UST trading and settlement.

This paper explores the four drivers transforming the future of financial markets:

#1 Increased adoption of digital market infrastructure and blockchain technology

#2 Growth of digital cash equivalents and tokenization

#3 Power of interoperability and the network effect

#4 Regulation as a catalyst for growth

Whether through DLT or next-generation payment systems, the true transformation lies in how networks interconnect. BNY is uniquely positioned to connect the traditional and digital financial ecosystems and enable clients to accelerate their growth and run their businesses faster and more efficiently.

For over two centuries, BNY has been at the forefront of financial market evolution and powering global capital flows — connecting investors, issuers and markets through trusted infrastructure that enables trillions of dollars to move safely every day. Today we are driving the new standard by incorporating the latest technology and innovations.



Global financial markets are experiencing sweeping change. Capital markets are moving faster and blockchain technology and digital asset adoption are becoming more mainstream. With our central position and scale in capital markets we are particularly well positioned to build the future financial infrastructure in partnership with our clients.”

MEGATRENDS SPOTLIGHT: CAPITAL MARKETS TRANSFORMATION WITH SPEED

Global capital markets are undergoing a period of rapid modernization, driven by technological disruption, accelerated asset and payment flows, rising trading volumes, and heightened market volatility. Institutions now demand fully integrated, front-to-back platforms covering execution, clearing, settlement and custody — eliminating silos, boosting efficiency, and enabling seamless connections between legacy and modern systems. Institutional clients want speed, settlement certainty and real-time, post-trade visibility to support dynamic risk management across asset classes, time zones and geographies.

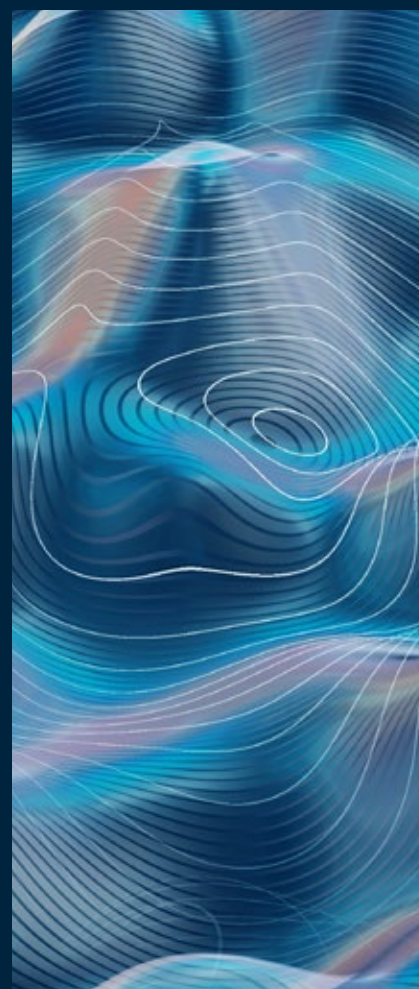
As global investors work to minimize latency and friction, infrastructure that supports 24/7 trading has become a necessity. Regulatory mandates and market volatility have intensified focus on margin and liquidity optimization that results in strengthening resiliency and reducing bilateral counterparty credit risk. Together, these shifts signal a capital markets landscape that is faster and even more interconnected.

Settlement times reflect this shift — over the past four decades, the trade-to-settle cycle has compressed from T+5 in 1985 to T+1 in 2025 powered by infrastructure upgrades and early adoption of DLT. With blockchain enabling near-instant, around-the-clock transfers, markets are poised to move toward intraday or near-instant clearing, unlocking liquidity and further reducing settlement risk.

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Capital markets are moving faster and volatility is driving market participants to seek more certainty of settlement — blockchain has arrived as a mechanism with great potential to enable this future market structure.”

ADAM VOS,
GLOBAL HEAD OF MARKETS



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With over \$3.5 trillion¹ of new wealth created in digital assets, the next generation of clients looks for 24/7 transaction capability and always-on market access — heralding a fundamental shift in how everyone from emerging wealth to high-net-worth individuals engages with their financial future.”

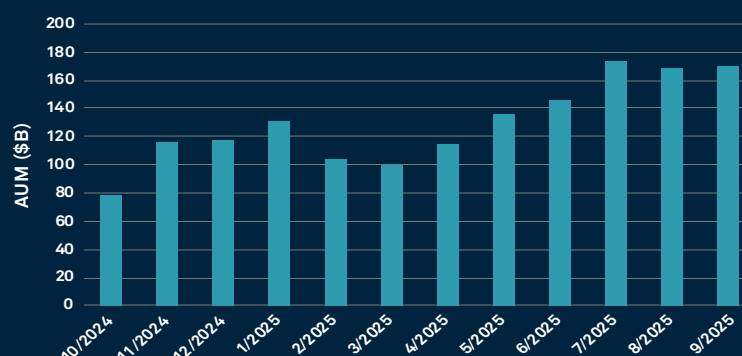
JAMES CROWLEY,
GLOBAL HEAD OF BNY PERSHING

MEGATRENDS SPOTLIGHT: INSTITUTIONAL ADOPTION OF DIGITAL ASSETS

Digital assets have rapidly moved from niche to mainstream, as major banks, institutions and corporations allocate to and employ cryptocurrencies, stablecoins and tokenized securities. This shift is powered by maturing DLT, supportive regulations and growing demand for financial innovation. This influx of institutional capital is deepening liquidity, improving price discovery and importantly driving the development of infrastructure that connects digital and traditional markets.

The recent emergence of crypto exchange-traded products (ETPs) accelerated both institutional adoption and retail access to digital assets. In the U.S., Crypto ETPs have grown by over 100% in assets under management (AUM) over the last 12 months (Figure 1).

FIGURE 1: GROWTH OF U.S. CRYPTO ETP ASSETS



Source: Bloomberg as of September 2025.

A central pillar of this evolution is tokenization, which enables the fractionalization of securities, real-world assets and other financial instruments. By digitizing ownership and embedding assets on-chain, tokenization is creating new channels for liquidity, broadening access and enhancing transparency. Multiasset digital infrastructure is emerging to support the custody, issuance, trading and settlement of these tokenized assets. These platforms are emerging as the gateway to the next-generation financial system.

Concurrently, digital payment rails via stablecoins and tokenized cash-like instruments offer near-instant, cross-border settlement while reducing counterparty and reconciliation risks. Such advancements are laying the foundation for a financial ecosystem that could operate at the speed of digital commerce. Digital assets and cryptocurrencies are moving from experimental to foundational elements of the future of financial market infrastructure driven by institutional adoption in diversified portfolios and evolving global regulatory frameworks. This convergence of institutional capital and technology is enabling even greater market efficiency.

FOUR DRIVERS TRANSFORMING FINANCIAL MARKETS

#1 Increased adoption of digital market infrastructure and blockchain technology

The rise of blockchain is enabling a new operating model in which traditional financial infrastructure is evolving, while also embracing digital rails — fundamentally transforming how assets are recorded, transferred and moved.

Today, transactions often involve complex processes and data may sit with intermediaries — consider a world where data and contracts are stored in a private, secure digital ledger that is instantly accessible and programmable. That's the potential that smart contracts and blockchain-based transaction records can provide. By embedding programmable logic into financial agreements, smart contracts can automatically execute transactions when predefined market, economic or time-based conditions are met. This innovation has the potential to create enhanced liquidity and asset mobility, driving greater efficiency across the entire financial system and unlocking new use cases across custody, payments, clearing and collateral.

Digital Asset Custody

As the world's largest custodian, BNY also provides digital asset custody (DAC) — the secure safekeeping and settlement of digital assets within a single, integrated infrastructure for institutional clients. BNY is the first and only U.S. Global Systemically Important Bank (G-SIB) to provide this service.² As a result, clients benefit from institutional-grade safeguards such as protection from bankruptcy automatic stay proceedings. Early and continuous investments in our digital asset platform have positioned BNY to meet increasing institutional interest and adoption.



At BNY, our digital asset custody platform isn't a standalone solution. We've built this product leveraging the significant investment, rigorous controls and unwavering commitment to client trust that underpins the existing asset servicing franchise and allows us to join the traditional and digital asset ecosystems."

EMILY PORTNEY, GLOBAL HEAD OF ASSET SERVICING

BLOCKCHAIN is the most well-known form of distributed ledger technology (DLT). It is a shared, digital ledger that records transactions in "blocks," with each block cryptographically linked to the one before it. The main benefits of blockchain technology include:

- **Transparency.** Everyone in the network can see the same records, increasing trust
- **Security.** Data is cryptographically signed and can't be changed or deleted once recorded
- **Decentralization.** No single authority controls it, reducing the risk of manipulation
- **Efficiency.** Speeds up transactions by eliminating complex processes
- **Traceability.** Easy to track assets and verify authenticity across the supply chain

DAC is emerging as the on-ramp to a broad suite of innovative, digitally native services. Through DAC, institutional clients can access the broader BNY ecosystem and our full suite of products and services. The potential benefits are clear: faster and cost-effective transactions, reduced settlement and counterparty risks, reduced operational costs, enhanced security, transparency and immutable record keeping.



The power of the programmable nature of blockchain coupled with AI is catalyzing change.”

LEIGH-ANN RUSSELL, CHIEF INFORMATION OFFICER
AND GLOBAL HEAD OF ENGINEERING

Payments

Payments infrastructure is evolving in response to client demand for around-the-clock services. Traditional systems are changing rapidly and will be augmented by blockchain technology. Without effective integration, institutions and their clients may face higher costs, settlement delays and operational inefficiencies.

Established wire systems such as CHIPS and Fedwire are exploring expanding operating hours to enable 24/7/365 global USD settlement — an important step that will likely unfold in phases. Globally, nearly 100 instant payment networks, including The Clearing House’s RTP® and the FedNow® Service in the U.S., are enabling 24/7 instant domestic payments, with many supporting “one leg out” functionality for cross-border instant settlement. Meanwhile, initiatives such as Bank for International Settlements’ Project Nexus, Swift’s Digital Initiative, and Agora are working to establish shared standards for a 24/7 cross-border payments ecosystem.

Given access to these services is not yet universal, complementary blockchain-based solutions are needed. Smart contracts turn digital tokens, like stablecoins and tokenized deposits, into programmable money that can automate settlement and enable fast, cost-effective peer-to-peer transfers. While payments infrastructure is becoming continuous, other traditional financial services still operate within limited hours. Tokenized assets and blockchain-based ledgers can close this gap by enabling synchronized, real-time money movement.

At BNY, we are focused on seamlessly connecting blockchain platforms with traditional systems — not replacing what works but enhancing it with tools that support various tokens and enable secure, efficient communication between different networks.



BNY was the first bank to originate a real-time transaction through the FedNow Service and The Clearing House’s RTP network, and we continue to support businesses in moving capital more immediately and efficiently as evidenced by our efforts to co-lead the [Swift digital initiative](#) to set industry standards for tokenized payments.



The future of payments will be defined not just by how fast we can move money, but by how seamlessly and securely we can embed trust and transparency into every transaction. Digital solutions are emerging at the forefront, rewriting the rules of commerce and unlocking new levels of financial inclusion.”

JENNIFER BARKER,
GLOBAL HEAD OF TREASURY SERVICES
AND DEPOSITARY RECEIPTS

Collateral

Institutions are increasingly looking to unlock value from their assets by using them as collateral for financial transactions such as futures contracts and over-the-counter derivatives. Blockchain technology and tokenization can play an instrumental role in achieving this goal.

In 2022, cash and government securities represented around 83% of the total traditional collateral for regulatory initial margin for cleared derivatives. By 2024, that share dropped to 68%. The fraction of total collateral made of other assets increased from 17% in 2022 to 31% in 2024 as the spectrum of assets used as collateral widened.³

Bringing traditional assets, such as bank deposits and money market funds, into the digital realm increases their mobility and allows institutions to use them as collateral. BNY's scale and expertise will help clients to seamlessly connect traditional assets to blockchain rails to deliver next-generation digital asset services.



Digital assets and the future of finance are no longer theoretical discussions — they're becoming central themes in client conversations. We're seeing a clear shift where investors want to understand not just the opportunities, but also how these innovations will reshape the broader financial ecosystem."

CATHINKA WAHLSTROM,
CHIEF COMMERCIAL OFFICER

#2 The growth of digital cash equivalents and tokenization

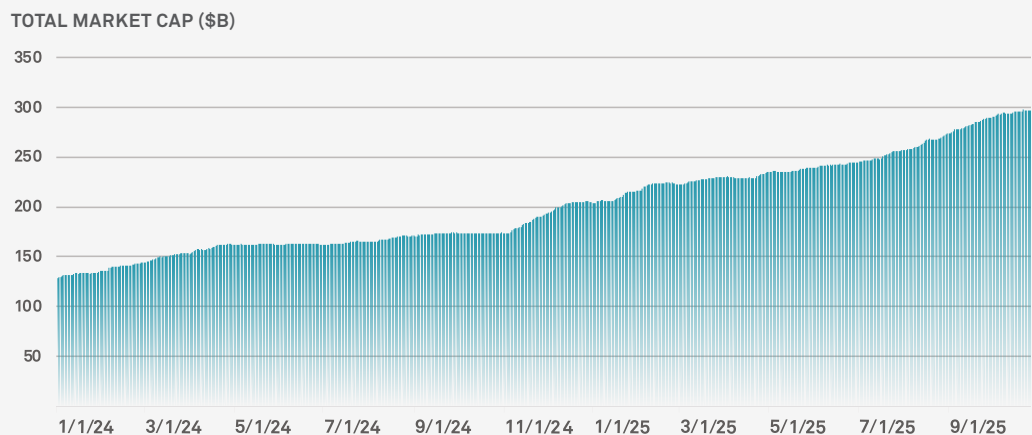
Clients are seeking faster and more efficient ways to move assets — with greater settlement certainty, auditable record keeping, lower friction and greater capability to unlock liquidity. Tokenization is playing a pivotal role in advancing capital markets, particularly in the cash markets with the growth of digital cash and cash equivalents.

Every transaction requires a "cash leg," meaning cash is used to purchase an asset. In the same way that you buy a security from a brokerage account or milk at the grocery store, cash is used and exchanged for the item or asset purchased. In the digital blockchain-enabled world this is also the case.

TOKENIZATION refers to the process of creating a digital representation ("token") of an asset on a blockchain or distributed-ledger system. Each token represents a claim, share or fraction of the underlying asset, making it easier to store, transfer and trade securely. Tokenization enables benefits such as 24/7 access and near-instant settlement.

Stablecoins — cryptocurrency with value pegged to a reference asset, such as the U.S. dollar — have quickly emerged as a mainstream digital cash substitute due to their stability, and have grown to over \$290 billion in assets (Figure 2).

FIGURE 2: GROWTH OF STABLECOINS

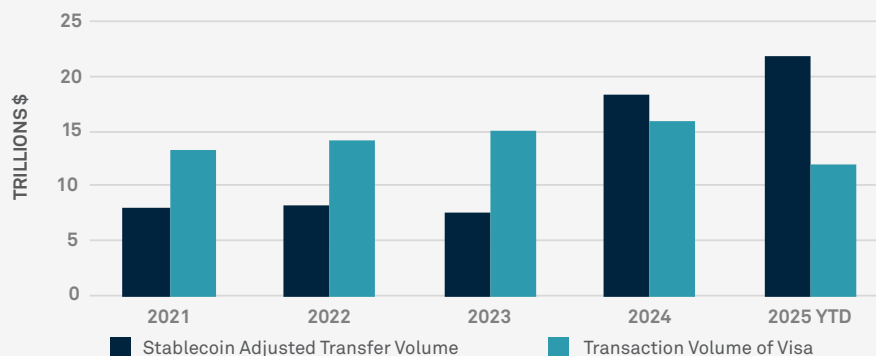


Source: rwa.xyz, October 2025.

Common use cases for stablecoins include a medium of exchange, facilitating efficient payments, and a store of value, similar to holding a USD bank account, which is particularly valuable in countries where access to USD is limited.

Stablecoins adjusted transfer volume in 2024 exceeded that of major credit card companies, signaling the emergence of a new trend in payments (Figure 3).

FIGURE 3: STABLECOIN TRANSFER VOLUME VS. MAJOR CREDIT CARD TRANSACTION VOLUMES



Source: Artemis Analytics, September 2025. This is based on stablecoin adjusted transaction volume data that filters out, for example, the large blockchain Maximal Extractable Value (MEV) bot activity involved in the transaction validation process.

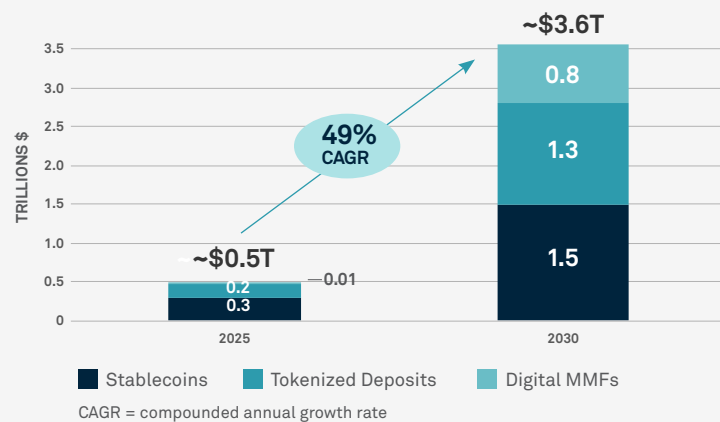


Tokenization and the digital asset financial transformation are creating a new paradigm for investing, enabling customization, efficient trading and access to new asset classes.”

JOSE MINAYA, GLOBAL HEAD OF
BNY INVESTMENTS AND WEALTH

Tokenization of other cash equivalents including U.S. Treasury Bills, money market funds (MMFs) and deposits are also growing rapidly. Analysis suggests that stablecoins, together with digital MMFs and tokenized deposits, could reach \$3.6 trillion by 2030 (Figure 4).

FIGURE 4: DIGITAL CASH & CASH EQUIVALENTS PROJECTED MARKET CAP



Source: BNY analysis, using baseline data, including traditional pools/volumes [Federal Reserve of St. Louis, SIFMA, CEIC, ISDA margin survey report (2024), CFTC cleared initial margin (Dec. 2024), NY Fed (June 2025), FXC Intelligence (Jan. 2025)], historical stablecoin and digital MMF market cap data from rwa.xyz. Some numbers may not add up exactly due to rounding.

DEFINING DIGITAL CASH EQUIVALENTS

- A **stablecoin** is a token issued on a blockchain and supported by a specific asset (e.g., UST) which is used to maintain a stable value (e.g., 1 USD)
- A **tokenized deposit** is a digital representation of a client's bank deposit on a blockchain
- A **tokenized money market fund (MMF)** is a digital representation of a traditional MMF on a blockchain

BNY aims to enable clients to transact and use digital cash and cash equivalents, such as stablecoins and tokenized money market funds, through providing end-to-end services spanning custody, cash settlement and investment management to collateral.

As more assets move on-chain, closing the gap between off-chain traditional security and fund data with on-chain data will be vital. Just as traditional markets depend on new-issue and secondary-market data for pricing, trading and risk management, digital-asset markets will rely on the same.

Put simply, tokenization is transforming how assets can be packaged — as a digital representation on a blockchain. Repackaging assets as blockchain-based digital representations opens a new frontier of possibilities — much like ETFs pioneered a novel wrapper over 30 years ago.

#3 The power of interoperability and the network effect

Interoperability in digital assets began by enabling transactions between blockchains to reduce market fragmentation and boost liquidity. Today, it more broadly bridges traditional and digital markets allowing clients to seamlessly transfer assets or exchange them between the two. Through tokenization, clients can convert deposits, stocks, bonds or other assets into on-chain tokens for financing, collateral optimization, settlement, reporting and portfolio management use cases.

Much of what the industry learned from traditional finance can be applied to digital assets, particularly around market structure and interoperable layers. For example, clearing houses, also known as central counterparties (CCPs), reduce bilateral counterparty risk, deliver netting efficiencies and balance-sheet benefits that scale as more participants engage. Similarly, we expect blockchain-based systems to augment traditional infrastructure with faster and more transparent settlement and collateral transfers.

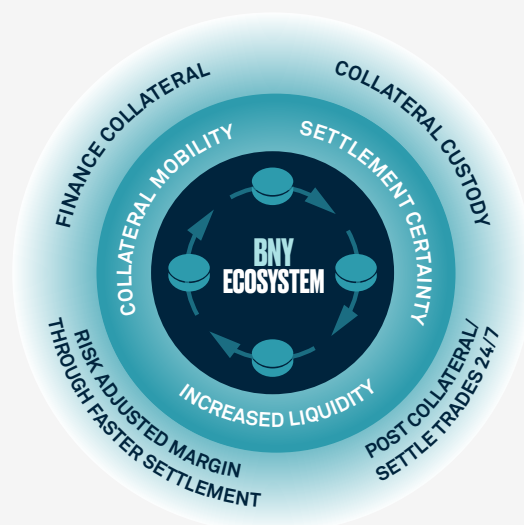
BNY is at the forefront of this shift and plays an unparalleled role in global financial markets. Take UST markets as an example. BNY is the primary settlement bank, leading triparty liquidity venue, and the largest UST custodian,⁴ and as such, significant UST trading and settlement occurs between institutions within the BNY ecosystem. This end-to-end view provides the opportunity to accelerate settlement cycles and increase settlement efficiency.

The BNY ecosystem serves the full spectrum of client needs, including custody, payments, trading, settlement and collateral, investment management and data. As a result, we are building toward enabling clients and market participants to engage across digital cash and cash equivalent instruments however they need.

The future of financial markets lies in uniting traditional and digital ecosystems to unlock new levels of efficiency, liquidity and transparency. At BNY, by integrating traditional finance rails and digital asset rails, we aim to lower friction for clients, enhance transparency and resilience, and provide an ecosystem with a full suite of services.

Tokenization has the potential to revolutionize asset issuance, transfer and management, powering innovative use cases such as T+0 repos, intraday lending, and frictionless cross-border payments. Borrowing and lending can become instantaneous, with triparty collateral services providing continuous access to liquidity across digital and traditional rails. At the core lies a consolidated and cohesive digital market infrastructure — connecting issuers, investors and platforms.

FIGURE 5: OUR VISION FOR AN INTEROPERABLE, 24/7 OPERATING MODEL



With our significant roles in the U.S. Treasury market and the traditional collateral management ecosystem, BNY can drive synergies and efficiencies for our clients by seamlessly connecting these market-leading platforms through our private blockchain rails.”

BRIAN RUANE, GLOBAL HEAD OF CLEARANCE AND COLLATERAL MANAGEMENT, CREDIT SERVICES AND CORPORATE TRUST



#4 Regulation as a catalyst for growth

As the industry matures, regulators must balance transparency and investor protection with supporting innovation and maintaining stability within the broader financial system, particularly as digital asset markets scale.

The good news is that many regulators across the globe are implementing regulatory frameworks that do attempt to strike a balance between these goals. In the U.S., the [GENIUS Act](#) aims to create a regulatory framework for payment stablecoins, including requirements for issuers, reserve asset composition and custody, Bank Secrecy Act/Anti-Money Laundering (BSA/AML), bank activity with respect to stablecoins and more. Additionally, forthcoming regulations are expected to address, among other things, financial stability concerns related to the proliferation of stablecoins, such as capital and liquidity requirements for issuers. In Europe, the [Markets in Crypto-Assets Regulation \(MiCA\)](#) institutes uniform market rules for crypto assets to support market integrity and financial stability. In Asia-Pacific, key markets such as Hong Kong, Singapore, and Japan have introduced extensive guidelines for stablecoins that reflect their commitment to fostering a secure digital asset ecosystem that balances innovation with robust risk management.

These new frameworks are critical steps toward the implementation of comprehensive regulatory regimes that encourage market maturation, investor protection, responsible growth and innovation. However, long-term success depends on establishing applicable regulations that are defined, reasonable and evolve with blockchain and emerging technologies.

Core principles — such as sound governance, client asset segregation, clear record-keeping, security and technology standards, capital and liquidity requirements, limits on extreme leverage, AML protections, strong risk management and regulatory guardrails — must apply to all market participants and assets regardless of their technological wrapper.

We celebrate the evolving guidance around digital asset regulations. Today, BNY connects traditional and digital financial infrastructure, reflecting our longstanding leadership in financial industry innovation. Our 2022 launch of [digital asset custody](#) exemplifies how we set the standard for responsible innovation — embracing state-of-the-art technologies to meet clients' demand for a faster, more connected world.

We welcome continued focus by central banks and banking regulators globally on developing and supporting regulatory frameworks that promote safety and soundness which gives confidence in our currencies and banking systems. With stronger foundations and global policy developments, we remain committed to helping clients unlock even greater opportunities, all while adhering to rigorous regulatory requirements.

BNY: AT THE CENTER OF GLOBAL MARKETS AND FOREFRONT OF THE DIGITAL ASSET REVOLUTION

The catalytic forces of capital markets advancing with speed and the widespread adoption of digital assets have ignited a profound transformation across the financial ecosystem. Yet, bringing this vision to life demands a partner with deep market structure expertise. Drawing on centuries of leadership navigating financial market evolution, BNY is shaping a future that is faster, even more efficient and inherently programmable. A market where transparency and auditability are built into the fabric of every transaction, and where pre-trade, trade and post-trade processes become seamlessly integrated.

This convergence of history and innovation represents not just a market evolution but a reimagining of capital markets infrastructure and BNY is at the center empowering clients to capture their full potential.



We stand at a powerful inflection point that may fundamentally transform how global capital markets function and how its participants transact. At BNY we're partnering with market participants to streamline operations, unlock new growth categories and invest across tokenization, blockchain and AI to help drive the next-generation financial infrastructure.”

CAROLYN WEINBERG, CHIEF PRODUCT AND INNOVATION OFFICER

[Click here](#) to speak to a BNY representative and learn more.

¹ "Cryptocurrency Prices Today By Market Cap," *Forbes.com*, October 2025, <https://www.forbes.com/digital-assets/crypto-prices/?sh=4a11b1bf2478>

² Until the launch of a crypto asset custody offering in the U.S. by another G-SIB or institutional bank.

³ "ISDA Margin Survey Year-end 2024", ISDA.org, May 2025, <https://www.isda.org/2025/05/14/isda-margin-survey-year-end-2024/>

⁴ Ranking based on latest available peer group company filings as of Sept. 30, 2025. Peer group included in ranking analysis: State Street, JPMorgan Chase, Citigroup, BNP Paribas, HSBC, Northern Trust and RBC.

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